

DEPARTMENT OF TRANSPORTATION

DIVISION OF ENGINEERING SERVICES

Office of Structural Materials

Quality Assurance and Source Inspection



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Contract #: 04-0120F4Cty: SF/ALA Rte: 80 PM: 13.2/13.9File #: 69.28**WELDING INSPECTION REPORT****Resident Engineer:**Pursell, Gary**Address:** 333 Burma Road**City:** Oakland, CA 94607**Report No:** WIR-002586**Date Inspected:** 27-May-2008**Project Name:** SAS Superstructure**OSM Arrival Time:** 630**Prime Contractor:** American Bridge/Fluor Enterprises, a JV**OSM Departure Time:** 1530**Contractor:** Zhenhua Port Machinery Company, Ltd (ZPMC), Changxing Island **Location:** Shanghai, China**CWI Name:** See below**CWI Present:** Yes No**Inspected CWI report:** Yes No N/A**Rod Oven in Use:** Yes No N/A**Electrode to specification:** Yes No N/A**Weld Procedures Followed:** Yes No N/A**Qualified Welders:** Yes No N/A**Verified Joint Fit-up:** Yes No N/A**Approved Drawings:** Yes No N/A**Approved WPS:** Yes No N/A**Delayed / Cancelled:** Yes No N/A**Bridge No:** 34-0006**Component:** OBG/Tower**Summary of Items Observed:**

Caltrans Quality Assurance (QA) Inspector Sherri Brannon arrived on site at the Zhenhua Port Machinery Company (ZPMC) facility at Changxing Island, in Shanghai, China to periodically monitor welding and Quality Control (QC) functions. While on site the QA Inspector observed and/or discovered the following.

OBG/Tower Sub-Assembly

Bay 2

77 & 144 Meter Mock-up:

QA Inspector Brannon observed tower mock-up to be idle during this shift. QA Inspector Brannon also, randomly observed ZPMC personnel CNC torch cutting with 75% natural gas and 25% oxygen for interior splice plate for various tower elevations.

Bay 3-OBG side panels (Gantry 2):

QA Inspector Brannon randomly observed ZPMC qualified welders Mr. Liz Hao Qian ID#048810, Mr. Xin Meng ID#053742 and Mr. Sun Ti Yu ID#054459 fillet welding joining T-stiffeners to side panel plate for SP529-001 weld joints 036~049 and SP527-001 weld joints 001~014. Mr. Liz, Mr. Xin and Mr. Sun was observed welding in the 2F (horizontal) position utilizing flux cored arc welding (FCAW) process with a 1.4mm diameter electrode, filler metal brand Supercored 71H, class E71T-1. Welding parameters observed by QA Inspector Brannon appear to be in general compliance with the approved WPS-B-T-2132-3.

Bay 3-OBG side/bottom/edge panels:

QA Inspector Brannon randomly observed ZPMC qualified welders, tack welding various T stiffeners plate

WELDING INSPECTION REPORT

(Continued Page 2 of 3)

utilizing a shielded metal arc welding (SMAW) process with a 4.0mm diameter electrode, filler metal brand E7018, class TL508 non-FCM and filler metal brand E7018, class THJ506Fe-1 for FCM material . Welding parameters observed by QA Inspector Brannon appear to be in general compliance with the approved WPS-B-P-2112 and WPS-B-P-2112-FCM respectively.

Bay 4 – Heat straightening side panel:

QA Inspector Brannon randomly observed ZPMC personnel performing heat straightening on various side/bottom/edge panels and tower diaphragm plates. Side/bottom/edge panels cause for heat straightening welding distortion and tower diaphragm plates cause for heat straightening mill induced. Heat Straightening is performed by flame straightening using oxygen acetylene or natural gas using a hand torch.

Bay 4 Tower 33 Meter Elevation:

QA Inspector Brannon randomly observed ZPMC welder Mrs. Gu Cai Hong ID #053748 welding fill/cover pass's joining SA27 (N) to P546 (N) weld joint # NSD1 SA27 -1B. Mrs. Gu was observed welding in the 1G (flat) position utilizing a submerged arc welding (SAW) process with a 4.8mm diameter electrode, filler metal brand LA-85, class ENi5, machine. QA Inspector Brannon observed the ZPMC QC CWI Inspector Mr. Zhao Chen Sun verifying that the welding parameters and pre-heat were in accordance with the Welding Procedure Specification (WPS). QA Inspector observed preheat and welding parameters measured by the QC CWI Inspector Zhao Chen Sun to be: preheat temperature of 180°C and welding parameters amps of 580, volts of 30.5, and a travel speed of 495. Welding parameters observed by QA Inspector Brannon appear to be in general compliance with the approved WPS-B-T-3221-B-U3c-S-1.

Bay 4 Tower 23 Meter Elevation:

QA Inspector Brannon randomly observed ZPMC welder Mr. Jiang Jing Teng ID #046830 welding fill/cover pass's joining SA238 (E) to P414 (E) weld joint # ESD1 SA238 -3A & 4A. Mr. Jiang was observed welding in the 1G (flat) position utilizing a submerged arc welding (SAW) process with a 4.0mm diameter electrode, filler metal brand LA-85, class ENi5, machine. QA Inspector Brannon observed the ZPMC QC CWI Inspector Mr. Zhao Chen Sun verifying that the welding parameters and pre-heat were in accordance with the Welding Procedure Specification (WPS). QA Inspector observed preheat and welding parameters measured by the QC CWI Inspector Zhao Chen Sun to be: preheat temperature of 180°C and welding parameters amps of 633, volts of 29.2, and a travel speed of 500. Welding parameters observed by QA Inspector Brannon appear to be in general compliance with the approved WPS-B-T-3221-B-U3c-S-1.

Bay 7-OBG - Floor Beam Sub Assembly:

QA Inspector Brannon randomly observed ZPMC personnel performing heat straightening on various floor beam plates. Cause for heat straightening welding distortion. Heat Straightening is performed by flame straightening using oxygen acetylene with hand torch.

Bay 7-OBG floor beam panels:

QA Inspector Brannon randomly observed ZPMC qualified welders, tack welding various floor beam diaphragm web plates to flange plates utilizing a shielded metal arc welding (SMAW) process with a 4.0mm diameter electrode, filler metal brand E7018, class TL508. Welding parameters observed by QA Inspector Brannon appear to be in general compliance with the approved WPS-B-P-2112.

Bay 8 – 18 Meter Tower Diaphragm Sub Assembly:

WELDING INSPECTION REPORT

(Continued Page 3 of 3)

QA Inspector Brannon randomly observed ZPMC qualified welder Mrs. Ma Ying ID #045270 groove welding joining SA290 (W) to P308 (W) weld joint WSD1 SA290-11A/12A. Mrs. Ma was observed welding in the 1G (flat) position utilizing a submerged arc welding (SAW) process with a 4.8mm diameter electrode, filler metal brand LA-85, class ENi5, machine. QA Inspector Brannon observed the ZPMC QC CWI Inspector Lv Li Qing verifying that the welding parameters and pre-heat were in accordance with the Welding Procedure Specification (WPS). QA Inspector observed preheat and welding parameters measured by the QC CWI Inspector Lv Li Qing to be: preheat temperature of 180°C and welding parameters amps of 601, volts of 30.1, and a travel speed of 479. Welding parameters observed by QA Inspector Brannon appear to be in general compliance with the approved WPS-B-T-3221-B-U3c-S-1

Bay 8 – Heat straightening:

QA Inspector Brannon randomly observed ZPMC personnel performing heat straightening on various tower diaphragm flange plates. Tower diaphragm plates cause for heat straightening mill induced distortion. Heat Straightening is performed by flame straightening using natural gas with a hand torch.

The following digital photograph below illustrates observation of the activities being performed.



Summary of Conversations:

No relevant conversations to report.

Comments

This report is for the purpose of determining conformance with the contract documents and is not for the purpose of making repair or fit for purpose recommendations. Should you require recommendations concerning repairs or remedial efforts please contact Mazen Wahbeh, (818) 292-0659, who represents the Office of Structural Materials for your project.

Inspected By: Brannon, Sherri

Quality Assurance Inspector

Reviewed By: Cuellar, Robert

QA Reviewer